

WHAT IS CLAIMED IS:

1. An electronic device having connecting means for connecting, in a loop, a main control portion for controlling the electronic device and a plurality of sub-processing portions for executing specific functions, said electronic device comprising:

a signal line for transmitting a test signal from said main control portion to said sub-processing portions, different from said connecting means connected in said loop;

a generating unit for generating predetermined packet data to said connecting means;

sub-processing portions comprising a receiving and transmitting unit for receiving said packet data and transmitting it to the next portion;

a determining unit for determining whether or not a fault exists at any portion in said electronic device in accordance with whether or not said sub-processing portion normally receives said packet data transmitted to said main control portion;

a transmitting unit for transmitting said test signal to said sub-processing portions via said signal line in case that said determining unit determines that the fault exists; and

a fault portion specifying unit for specifying a fault

portion in said electronic device based on whether or not a test packet transferred via said connecting means is normally received,

wherein said test packet is generated by said sub-processing portion in accordance with said test signal.

2. An electronic device having connecting means for connecting, in a loop, a main control portion for controlling the electronic device and a plurality of sub-processing portions for executing specific functions, said electronic device comprising:

a signal line for transmitting a test signal from said sub-processing portions to said main control portion, different from said connecting means connected in said loop;

a generating unit for generating predetermined packet data to said connecting means;

sub-processing portions comprising a receiving and transmitting unit for receiving said packet data and transmitting it to the next portion;

a determining unit for determining whether or not a fault exists at any portion in said electronic device in accordance with whether or not said sub-processing portion normally receives said packet data transmitted to said main control portion;

a transmitting unit for transmitting a test packet to

said connecting means in case that said determining unit determines that the fault exists; and

a fault portion specifying unit for specifying a fault portion of said electronic device based on a state of the test signal transmitted via the corresponding signal line from said sub-processing portions in accordance with said test packet.

3. An electronic device having connecting means a main control portion for controlling the device and a plurality of sub-processing portions for executing specific functions in a loop, said electronic device comprising:

a signal line for transferring a test signal, arranged between said sub-processing portion and said main control portion, different from said connecting means;

a generating unit for generating predetermined packet data to said connecting means;

sub-processing portions comprising a receiving and transmitting unit for receiving said packet data and transmitting it to the next portion;

a determining unit for determining whether or not a fault exists at any portion in said electronic device in accordance with whether or not said sub-processing portion normally receives said packet data transmitted to said main control portion; and

a fault portion specifying unit for specifying a fault portion in said electronic device via the corresponding signal line between said sub-processing portion and said main control portion in case that said determining unit determines that the fault exists.

4. An electronic device according to Claim 1, wherein, in case that said determining unit determines that the fault exists, fault diagnosis is performed, starting from said sub-processing portion on the downstream of said connecting means.

5. An electronic device according to Claim 2, wherein, in case that said determining unit determines that the fault exists, fault diagnosis is performed, starting from said sub-processing portion on the downstream of said connecting means.

6. An electronic device according to Claims 3, wherein, in case that said determining unit determines that the fault exists, fault diagnosis is performed, starting from said sub-processing portion on the downstream of said connecting means.